

CLAIMS.

1. An adhesive composition comprising an amount of an adhesive, characterised in that the adhesive composition further comprises an amount of an additive which is selected from the group of homopolymers of acrylic acid, copolymers of acrylic acid and, polyacrylates, polyurethanes, cellulose thickening agent, natural or synthetic gum, natural or synthetic resin, silica or an inorganic minerals having a layered structure.

2. An adhesive composition as claimed in claim 1, characterised in that the inorganic mineral is a clay mineral, in particular bentonite.

3. An adhesive composition as claimed in claim 1, characterised in that the additive is a homopolymer of an α,β -unsaturated monocarboxylic acrylic acid having 3-5 carbon atoms, which corresponds to formula I:



formula I

wherein R is a substituent selected from the group of H, monovalent alkyl, aryl, alkylaryl radicals, monovalent cyclo alkyl radicals, alkoxy, haloalkyl, cyanoalkyl containing 1 to 9 carbon atoms, the homopolymers being cross-linked with a cross-linking agent which is a polyfunctional vinylidene monomer containing at least two terminal methylene $\text{CH}_2=\text{C}$ groups, and having a molecular weight of between 0.05 – 100, preferably between 0.5 - 10, more preferably between 1 - 5 billion Dalton.

4. An adhesive composition as claimed in claim 3, characterised in that the homopolymer is a polymer of acrylic acid or methacrylic acid.

5. An adhesive composition as claimed in claim 1, characterised in that the additive is a copolymer of

- (i) an α,β -unsaturated monocarboxylic acrylic acid responding to formula I and having 3-5 carbon atoms:



formula I

wherein R is a substituent selected from the group of H, monovalent alkyl, aryl, alkylaryl radicals, monovalent cyclo alkyl radicals, alkoxy, haloalkyl, cyanoalkyl containing 1 to 9 carbon atoms,

5 with

(II) at least one alkyl acrylate represented by formula II



10 In which R' is selected from the group of H, methyl, ethyl and with an additive where R'' is a C10-C30 alkyl group,

the copolymers being cross-linked with a cross-linking agent which is a polyfunctional vinylidene monomer containing at least two terminal methylene CH₂=C groups, and having a molecular weight of between 0.05 – 100, preferably
15 between 0.5 - 10, more preferably between 1 - 5 billion Dalton.

6. An adhesive composition as claimed in claim 5, characterised in that in formula II, R'' is a C10-C20 alkyl group.

7. An adhesive composition as claimed in any one of claims 3 - 6, characterised in that the cross-linking agent is a polyalkenyl
20 polyether.

8. An adhesive composition as claimed in claim 7, characterised in that the cross-linking agent is an allylpentaerythritol.

9. An adhesive composition as claimed in any one of claims 1-8, characterised in that the additive is a pseudo plastic material.

25 10. An adhesive composition as claimed in any one of claims 1-9, characterised in that the adhesive composition is a starch based or a polyvinylacetate adhesive composition.

11. An adhesive composition as claimed in any one of claims 1-10, characterised in that the composition contains at least 0.001 wt. %, preferably at least 0.05 wt. % of the additive, and less than 5 wt. %, preferably
30 less than 1 wt. %, more preferably less than 0.5 wt. % of the additive with respect to the total weight of the adhesive composition.

12. An adhesive composition as claimed in any one of claims 1-11, characterised in that the composition contains between 0.5-50

parts by weight of starch, between 0.01 – 2.5 parts by weight of alkali hydroxide, between 0.01-2 parts by weight of borax, 80-150 parts of water.

5 13. A process for producing the adhesive composition as claimed in any one of claims 1-12, characterised in that the additive as claimed in any one of claims 1-11 is first diluted with starch and an optical clarification agent in a weight ratio of 75-100, preferably 90-95 parts by weight of starch, 0.5-10, preferably 1-5 parts of optical clarification agent and 1-10, preferably 4-9 parts of polyacrylate, and thereafter mixed with the adhesive composition.

10 14. A process for the production of laminated corrugated paper or card board, comprising a plurality of super imposed layers of corrugated paper or card connected together by intermittent flat sheets of paper, characterised in that an amount of the adhesive composition according to any one of claims 1-12 is applied to the top of the corrugations, where after the layers
15 are adhered to each other under pressure.

15 15. Paper or card board comprising a plurality of super imposed layers of corrugated paper or card connected together by intermittent flat sheets of paper, characterised in that the layers are adhered to each other by means of the adhesive composition as claimed in any one of
20 claims 1-12.

16. A compact paper or card board comprising a plurality of super imposed layers of paper or card, which are adhered to each other by means of the adhesive composition of any one of claim 1-12.

25 17. A process for the production of compact paper or card board comprising a plurality of super imposed layers of paper or card, characterised in that an amount of the adhesive composition of any one of claims 1-12 is applied to the layers, where after the layers are adhered to each other under pressure.

30 18. A solid premix which is characterised in that it contains about 20-80, preferably 40-60 parts of gelatinised starch, about 5-50, preferably 10-30 parts of alkali, preferably caustic soda, about 200-750, preferably 350-550 parts of starch powder, about 1-25, preferably 5-15 parts of borax, and about 0.01-5, preferably 0.5-2.5 parts of the additive claimed in any one of claims 1-12.